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Development of a Framework to Address Preventive Approaches to Hospital Avoidance

This briefing was prepared as part of a primary health care research collaboration between Griffith University and General Practice Queensland.

Background

This briefing follows on from briefing 7 which identified through a systematic review the significant predictors of hospitalization. This briefing presents the development of a framework from which to interpret findings and for consideration in the development of preventative approaches to understanding processes associated with chronic disease management. The full article (in journal publication review) can be found at www.gpqld.com.au/Programs/Collaborative_Research_Hub

Overall Health System Trends and Challenges

Current trends impacting on the health system in Australia include:

- Increased life expectancy
- A shift from acute to chronic conditions
- Higher levels of anxiety and depression
- Obesity
- drug use
- Increasingly market-driven healthcare

These associated challenges are complicated by workforce shortages, geographical dispersion, changing demographics and technological innovation.

Health Reform has re-orientated thinking from a disease-focused (crisis orientated) model of service provision to a greater emphasis on health promotion, well-being and the maintenance of good health.

Summary of Predictive Factors

31 unique factors were identified as determinants of avoidable hospitalization. These were grouped into three categories according to the individual, health service system and environmental factors.

Table 1: Summary of Predictive Factors

Individual Factors	Health Service System Factors	Environmental Factors
Age	Prior Hospitalization	Atmospheric Conditions
Gender	Availability of Health Services	Geographical Factors
Socioeconomic Status	Integrated Services & Coordinated Care	
Race and Ethnicity	Physician Characteristics	
Social Support	Self Management Supports	
Living Arrangements		
Biomedical Markers & Treatment		
Medication		
Health Status		
Co-Morbidity		

Table 2: Challenges and Potential Preventive Strategies for Hospital Avoidance

Challenges	Potential Strategies
Hospitalization is the result of a complex interplay of factors at all levels (i.e., person-related factors, physician factors, health system, geographical and environmental factors)	No single factor in isolation contributes to hospitalization and requires a multi-faceted response.* <ul style="list-style-type: none"> Multi-level response required supported by positive policy development
Equitable access to health services	Can be partially addressed through a comprehensive understanding of complex processes, which impact on unavoidable hospitalization. <ul style="list-style-type: none"> Address complexity through multi-level response with defined strategies and approaches. Supports required at the system level, organisational and practitioner level.
Individual (eg age, gender, marital status, socioeconomic status and race) and illness variables (disease type, disease duration and the number and nature of co-occurring illnesses and presence of co-morbidity) are difficult in influencing health outcomes	Highlights the importance of modifiable health service system enablers including: <ul style="list-style-type: none"> Self-management supports Continuity of Care (i.e., integrated services, care plans, management plans, emergency action plans) Physician qualities (eg use of guidelines, practice location, practice resources, physician experience)
Environmental and geographical considerations – e.g. distance to health services and practical strategies in accessing those services	<ul style="list-style-type: none"> Localised services and approaches to respond to the needs of a particular area Population-based projects and region-based health system planning required Data utilisation to inform health system planning Increased community capacity Accessible transport systems
Complexity of hospitalization and multiple factors impacting on improved outcomes (at all levels, patient, practice setting, organizational and system level).	<ul style="list-style-type: none"> Use the Social Determinants of Health Model (Schulz and Northbridge, 2004)¹ as a framework to respond to fundamental factors which all interact to address the complexity and to address the determinants, processes and outcomes needed to meet the reform required to address avoidable hospitalization. According to the mapping of the Model¹ (see table 3) the broader determinants of health provide potential solutions (eg. systems to support access to services, community & natural social connections, opportunities for civic participation, public and fiscal policies to support a strong primary health care system). These system level solutions need to be fundamental to the supports for proximate factors (i.e. stressors, social supports and health behaviours) and the fundamental inequalities that underpin the model.

* Note that the most studied predictors of age, gender and race are the least modifiable, yet continue to be a focus in prognostic health research.

Table 3: Factor matrix of significant predictors reported in the studies (n=82)

<i>Risks to avoidable hospitalization</i>	<i>Individual Health and Well-being</i> <i>n (%)</i>	<i>Interpersonal-Proximal</i> <i>n (%)</i>	<i>Service System-Intermediate</i> <i>n (%)</i>	<i>Environmental-Fundamental</i> <i>n (%)</i>
Stressors (increased risk)				
Age	22/28 (78%)			
Gender	16/21 (76%)			
Non-white race	13/18 (72%)			
Socio-economic status	22/23 (96%)			
Lower education	5/9 (55%)			
Unemployment	2/2 (100%)			
Bio-medical markers	17/19 (89%)			
Infectious processes	2/3 (66%)			
Disease history	2/2 (100%)			
Severity of condition	13/14 (93%)			
Smoking	2/6 (33%)			
Body mass index (obesity)	3/5 (79%)			
Co-morbidity	16/18 (88%)			
Hypertension	5/6 (83%)			
Treatment and therapy		9/10 (90%)		
General health status		6/6 (100%)		
Physical health status		13/14 (93%)		
Mental health status		7/7 (100%)		
Previous hospitalization		11/11 (100%)		
Emergency dept. visits		4/4 (100%)		
Medication		4/5 (80%)		
Length of stay		2/3 (66%)		
Access/ availability			7/9 (78%)	
Geographical topography				3/4 (75%)
Rurality			4/4 (100%)	
Urbanisation			2/3 (66%)	
Atmospheric conditions				5/6 (83%)
Supports (decreased risk)				
Treatment and therapy	9/10 (90%)			
Autonomy/coping	3/3 (100%)			
Social support		3/3 (100%)		
Living arrangements		4/6 (66%)		
Insurance		6/8 (75%)		
Integrated care		10/10 (100%)		
Self-management		6/7 (86%)		
GP characteristics		1/2 (50%)		
Strategies for the future				
Centralised systems				
Place-based approaches				
Increased community capacity				
Positive health policies (including reducing social inequities)				
Accessible transportation systems				

According to this model, findings from this review confirmed that much of the research investigating hospitalization in chronic disease is largely focussed on personal (individual health and well being) or inter-personal (proximal) factors in hospitalization and associated risk. There is also a trend in the existing literature to focus on stressors rather than supports that can buffer effects of competing variables, or help to overcome limitations.

Strategies which have multiple long-term benefits need to be addressed to optimise health service delivery and coordination at the same time as promoting a preventative approach to managing complex comorbidities.²

The findings of the current review have emphasized the interplay between the individual, his or her physical condition and the social and physical environment. The availability of resources and services at each level and the imposition of stressors or agents of harm at each level can alter the outcome. When the balance between supports and stressors is managed for individuals and for specific areas/populations, a quality health system is produced. In terms of hospital avoidance, the aim of any health system should be to minimize stressors that deplete from health and wellbeing, reduce social inequities in health access and maximise population-wide supports or resources that can keep people healthy.

Acknowledgments

This briefing is a summary of a research paper (in journal publication review)

Paper Title: **Determinants of avoidable hospitalization in chronic disease: Development of a predictor matrix**

Available at: www.gpqld.com.au/Programs/Collaborative_Research_Hub

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1 - Schulz A, & Northridge ME. (2004). Social determinants of health and environmental health promotion. *Health Educ Behav.*

2 – Ahern, M.M., & Hendriyx, M. (2007). Avoidable Hospitalizations for Diabetes: Comorbidity Risks. *Disease Management*, 10(6), 347-355.